IWMI
International Water Management Institute

ReWater MENA

Thematic Brief

Developing bankable water reuse projects

Guidelines for planners, investors, project designers and operators

Main issues

To solve the challenges of water security in urban and rural areas heightened by increased water scarcity and a changing climate, alternative approaches are required.

Globally, the circular economy is seen as a better approach than the linear, take-make-dispose economy. The circular economy seeks to create and capture value in what would otherwise be waste materials and maximize that value to promote sustainable development. Recovering the water, energy, nutrients, and other materials embedded in water is a significant opportunity and is gaining more attention in the Middle East and North Africa (MENA) region for meeting the demand. Additionally, water reuse represents economic value by providing increased water flows and contributing to the conservation of freshwater resources.

To maximize the sustainability of limited water resources, there is a need to develop bankable water reuse models. In this context, bankable water reuse projects should be understood as projects that demonstrate a high likelihood of receiving public or private financing based on their value propositions that indicate the project is likely to be sustainable.

This brief provides guidance that can be used to develop bankable water reuse models in the context of the MENA region, to support the public and private sectors, investors, and donors in developing water reuse models.

Photo: Seersa Abaza

Key points

- Think like a business by considering business value propositions, setting priorities, and developing a business plan
- Identify water reuse options that safeguard the environment and human health, and those that provide products or services further downstream in the value chain
- Design innovative partnerships that can make water reuse projects more sustainable by seeking out new cost recovery and revenue-generating mechanisms

Context

Demand for freshwater resources is increasing due to population growth, urbanization, and agricultural expansion and intensification. The MENA region is one of the most arid regions on Earth and is characterized by low water availability. Agriculture is the dominant water user in most countries in the region and a key driver of economic development. The gap between water supply and demand is widening every year.

Governments in the MENA region are urgently seeking interventions to increase water security, including efforts to optimize water management, narrow the supply-demand gap and prevent water quality degradation. One promising solution is the smart use of water that has already been used. Water can be used in cities and reused in agriculture or for other beneficial purposes, with benefits for all. Water reuse has great potential to help overcome some of the challenges posed by the increasing pressure on already stressed water resources.

Sweden Sverige

Food and Agriculture Organization of the United Nations

Arab Water Council

ICARDA

ACWUA

CEDARE

Royal Scientific Society

Think like a business

Water reuse offers many options for recovering resources that should be considered when commencing water reuse projects, as shown in Figure 1. Implementers need to consider project building blocks and how they relate to each other, setting priorities and identifying what implications there might be on a business.

Priority setting is essential to identify potential models for a target area that have a high likelihood of success in a local context. To develop a bankable water reuse model, a five-step approach is recommended.

Step 1: Identify potential water reuse options
Step 2: Develop a business model for water reuse
Step 3: Identify innovative partnerships and financing
Step 4: Identify risks and opportunities
Step 5: Develop an implementation plan

Step 1: Identify potential water reuse options

The most obvious benefits of water reuse are environmental and public health, but reuse also offers a range of opportunities for transforming water into several value propositions. The innovation ladder demonstrates the variety of value propositions and options for cost recovery from water reuse. Water reuse implementers, therefore, have a wide range of options depending on the existing water collection and treatment infrastructure, technology, available financing, and the target usage.

Several countries in the MENA region have sewerage systems with more coverage in urban areas than rural. For example, 74% of households in urban areas of Egypt are connected to sewerage systems, whereas just 18% are covered in rural areas. Similarly, in Jordan, the coverage is 67% in urban and 4% in rural areas.

The first step in implementing a water reuse model is to identify which pathway will be most suitable given the local context and target usage.

Step 2: Develop a business model for water reuse

Following identification of the water reuse options, we next need to consider the reuse business model. It is important to note that the term 'business' does not imply the reuse model is profit-oriented or able to achieve full cost recovery through the value proposition. A business model consists of four core elements.

- **Value proposition:** characteristics that distinguish it from other competitors through the products and services it offers to meet its customer needs
- **Customer segment(s):** the end users, channels used to deliver its value proposition, and the customer relationship strategy
- **Infrastructure:** the key activities, resources, and partnership network that are necessary to create value for the customer
- **Financing (costs and revenues):** which ultimately determine a firm's ability to capture value from its activities and breakeven or earn profit

Innovation ladder

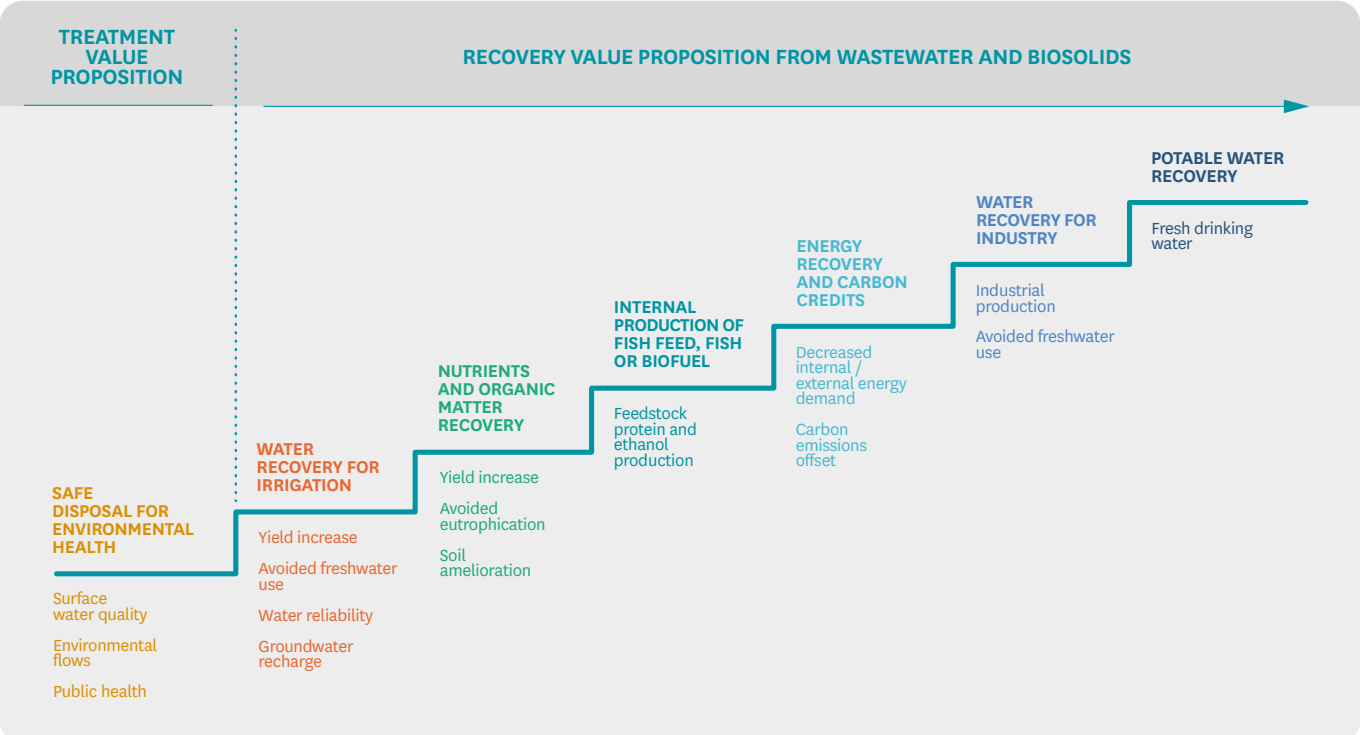

Figure 1. Ladder of increasing value propositions related to water reuse based on increasing investments in water quality and/or the value chain. *Source:* Drechsel et al. 2015.

Cost recovery through water reuse for fruit trees in Tunisia

The Ouradanine water treatment plant, managed by the National Sanitation Utility (ONAS), treats domestic water from about 3,400 households. The secondary treated water is used by nearby tree plantations managed by 40-46 private farmers producing olives, peaches, and pomegranates. Downstream irrigation infrastructure is managed by another public institution, Commissariat Regional de Development Agricole (CRDA), which receives the water from ONAS free of charge and sells it to the farmers at a subsidized price as an incentive for reuse of the reclaimed water. Additionally, the treatment plant supplies biosolids on demand as soil conditioner free of charge. Through this reuse model, ONAS recovers 40% of operation and management cost of the treatment plant.

Step 3: Identify innovative partnerships and financing options

Water reuse requires innovative business models that are embedded in partnerships and financing schemes. Value creation in water reuse goes beyond the typical focus on the private sector, where private entities, government, civil society, non-governmental organizations, and others can collaborate in cross-sectoral alliances. This serves to create new products, services, and economic and social values, or improve existing structures.

Public-private partnerships are the most common form of alliance in which government and private sector companies take co-ownership and responsibility for the delivery of products and services. In this arrangement, the private sector brings access to finance, technologies, efficiency, and entrepreneurship, while the public sector ensures social responsibility and environmental awareness. In the MENA region, most water utilities are publicly financed and operated, although private financing models are used.

Main sources of finance are equity, debt, and government grants. Financing from alternative sources has implications on the overall cost, cash flow, liability, and claims to incomes and assets for a project. One of the biggest challenges to water reuse is the ability to cover operational costs and achieve cost recovery.

Steps to consider when establishing partnerships

- Clearly define the motives and business objectives for partnering
- Assess the resources and capabilities required and what each partner brings
- Determine the degree of business model alignment with partners

Approaches for improving cost recovery of water reuse models include collecting smart fees, improving cost-effectiveness, incorporating government support, focusing on value chains, and diversifying revenue streams. Cost sharing through community contributions such as usage fees, household investments, and community-based savings are some of the most applied techniques to improve liquidity.

Step 4: Identify risks and opportunities

Water reuse project implementers are driven by internal factors, such as new profit opportunities, cost recovery mechanisms or environmental stability, and external factors, such as regulatory and market pressures. The local policy environment can act as a negative driver for water reuse projects. It is important to understand existing institutional, legal, and policy frameworks to identify opportunities and risks, and implement mitigation measures.

Additionally, water reuse projects should identify, analyze, and minimize other risks such as markets, competition, and technology performance. The simplest tools to understand the internal and external risks and opportunities is through a SWOT analysis that measures the strengths, weaknesses, opportunities, and threats for a business.

Step 5: Develop an implementation plan

An implementation plan, or business plan, provides the detail that sets out objectives, defines budgets, engages partners and anticipates problems before they arise. Partners and financial backers will want a copy of the implementation plan before providing capital. The plan should also develop strategies to improve its potential for cost recovery to improve overall performance.

Components of a business plan include:

- **Business concept:** describes the business, including its products and services, and unique selling proposition
- **Marketing plan:** defines the target market for the products and services, and how they will reach the market
- **Financial management plan:** outlines the costs for operations and how they will be covered, including any financing that may be needed
- **Operations and management plan:** details the processes and management of the core business, including human resources

Photo: Javier Mateo-Sagasta, IWMI

Recommendations for adoption

A sound and adequate policy, legal, and institutional framework is essential for providing an enabling environment for public and private sector investments in the water reuse sector. Regulatory frameworks can be important drivers but also significant barriers in water reuse business development.

For this guide to be effective, there is a need for conducive policy and institutional frameworks to enable public and private sector investments in the water reuse sector.

Stakeholder engagement and the development of incentive mechanisms are some of the strategies and means to mitigate constraints for successful adoption of water reuse models.

References

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Key source and further reading: Gebrezgabher, S.; Darwish, M.R. 2022. A guideline for developing bankable water reuse models. In: Mateo-Sagasta, J.; Al-Hamdi, M.; AbuZeid, K. (eds.). *Water reuse in the Middle East and North Africa: A sourcebook*. Colombo, Sri Lanka: International Water Management Institute (IWMI). pp.109-121. https://hdl.handle.net/10568/129126

For more information, visit: https://rewater-mena.iwmi.org/

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